

**What is claimed is:**

1. A method for controlling a voltage regulator comprising the steps of:

a) providing first and second charge storage devices switchably connected between a voltage source  
5 and the voltage regulator;

b) switching the first storage device into connection with the voltage source until the voltage on it reaches a predetermined level;

c) disconnecting the first storage device from  
10 the voltage source and switching it into connection with the second storage device and the voltage regulator until the voltage input to the voltage regulator falls below a predetermined level; and

d) repeating steps b) and c).

2. The method according to claim 1, wherein the storage devices comprise capacitors connected in parallel with the voltage regulator, across the voltage source.

3. The method according to claim 1, wherein the switching is performed by two switches connected in series, one between the voltage source and the first storage device and the other between the first and  
5 second storage devices.

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7. The apparatus according to claim 5, wherein the

5 devices.

second storage device.

5    said power supply and said voltage regulator in  
parallel to said power supply;

10           a second switch provided between said power  
supply and said second capacitor to open or close in  
response to a second control signal; and

15 switches such that said second switch opens and then  
said first switch closes when a voltage of said second  
capacitor decreases to a first predetermined level,  
and such that said first switch opens and said second

20 from the closing said first switch.

5 is closed.

5 said first switch closes when the voltage of said

second control signals based on the monitoring result.

capacitance than said first capacitor.



17. The power supply apparatus according to claim 14, wherein said control circuit monitors the voltage of said first capacitor and generates said first and second control signals when the voltage of said first capacitor decreases to said first predetermined level.

18. The power supply apparatus according to claim 14, wherein said second capacitor is larger in capacitance than said first capacitor.

19. The power supply apparatus according to claim 14, wherein said control circuit monitors the voltage of said first capacitor and an output voltage of said voltage regulator and generates said first and second control signals based on the voltage of said first capacitor to the output voltage of said voltage regulator.